
Superfund

Superfund Progress — Aficionado's Version

*Prepared by EPA's Office of Solid Waste and Emergency Response
Superfund Program*

Progress as of September 30, 1992

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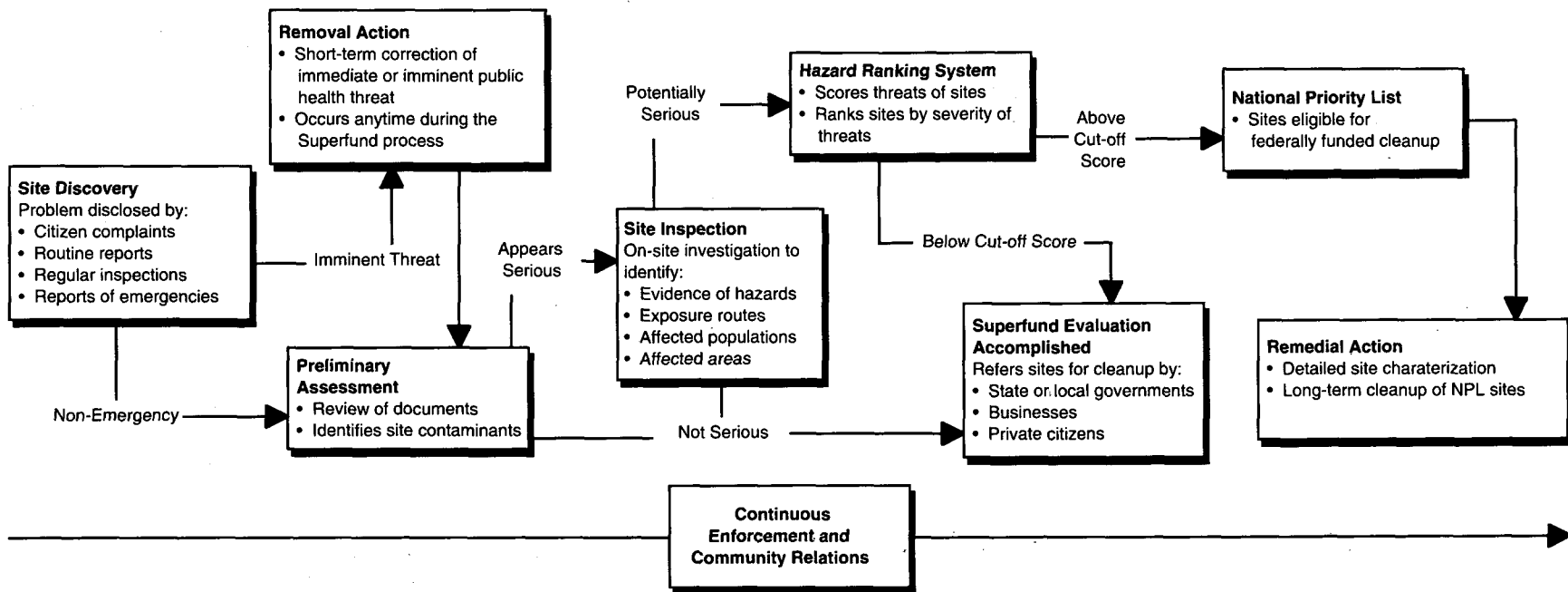
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Superfund is the nation's program for cleaning up uncontrolled hazardous waste sites. It was established by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. The **Removal Program** responds quickly to emergencies where hazardous materials are, or may be, released. The **Remedial Program** is dedicated to long-term cleanup of hazardous waste sites that pose the greatest threat to public health or the environment. Removals can occur anywhere, at any time. Federally funded remedial actions are limited to sites on the National Priorities List (NPL).

The Superfund process is rigorous and detailed. It has to

be to ensure that the greatest protection is afforded the public and the environment, while at the same time the rights of Potentially Responsible Parties (PRPs) and other participants are protected. The flow chart below shows the Superfund cleanup process. The major steps in the process are:

- Site discovery and investigation.
- EPA evaluation of possible hazards from site contaminants and, if warranted, addition of the site to the NPL. Sites ineligible for federal cleanup are referred to state or local government, business, or individuals for cleanup.



- Negotiations to compel Responsible Parties (RPs) to pay for cleaning up the hazardous waste problems they helped create.
- On-going community relations.
- Thorough studies to develop detailed site characterization in order to determine which cleanup methods may be most effective, given the contaminants present and their potential harm to public health or the environment.
- Selection, design, and implementation of a cleanup plan, including periods of public comment on proposed cleanup techniques.
- Follow-up to ensure cleanup is effective.

More than 90 percent of the sites in CERCLIS have been evaluated to determine whether they pose immediate threats to public health or the environment. Emergency removals have been, or are being, taken where warranted. NPL sites are inspected at least once every two years to determine if changing conditions mean a removal action is required.

The hazardous waste sites on the NPL are the nation's worst. They are eligible for federally funded cleanup, although Superfund's "enforcement first" policy means that Responsible Parties (RPs) pay for as much of the cleanup work as possible. But no matter who pays for, or performs, the cleanup work, EPA is in charge of selecting cleanup methods, setting cleanup levels, and overseeing site work to make sure sites are safe and people and the environment are protected.

EPA records in its CERCLIS database every hazardous waste site considered for a Superfund cleanup and every site where a removal action is performed. (CERCLIS stands for the Comprehensive Environmental Response, Compensation, and Liability Information System.) The system tracks the identification, evaluation, and, if necessary, cleanup of hazardous waste sites. Whether a site requires a short- or a long-term cleanup is determined by the oil and hazardous materials National Contingency Plan. The Remedial Project managers in each EPA Region, who oversee cleanup efforts, add information about the sites they manage to CERCLIS. Currently, there are 36,319 sites in CERCLIS. The *Superfund Site Tally* shows the current status of each CERCLIS site.

Superfund Site Tally (Including Federal Facilities)			
	NPL	Site Evaluation	CERCLIS
Construction Completed	149		
Remedial Actions	374		
Remedial Designs	212		
RODs	78		
RI/FS	396		
Removals Only	10		
Awaiting Action	58		
Total NPL Sites	1,275		
Site Evaluation Accomplished		20,905	
PA/SI Completed			31,397
Total Awaiting PA/SI			4,994
Sites with Removal only			423
TOTAL SITES IN CERCLIS			36,814

The NPL currently stands at 1,275 sites, including federal facility sites. Clean-up construction has been completed at 149 sites, and surface cleanup only has been completed at 196 sites. In addition:

- Remedial Actions are occurring at 374 sites (29%).
- Remedial Designs are underway at 212 sites (16%), and have already been completed at 437 sites for a total of 649 sites.
- Records of Decision have been signed for 795 sites (62%).
- Remedial Investigations/Feasibility studies are underway or have been completed at 1,170 sites (92%).
- And 56 sites (4%) are awaiting action.

The map on page 6 shows the distribution of current NPL sites nationwide.

This report documents the progress Superfund is making in fulfilling its mission of protecting people and the environment from exposure to hazardous waste. The *Superfund Progress Report* on this page summarizes these activities, and the sections that follow detail the progress EPA is making at each step in the Superfund process.

It is important to note that those 1,275 NPL sites have been placed on the list in phases with the most recent addition of 30 proposed sites in FY 92. Sites are not eligible to receive long-term funds until they are listed on the NPL.

Superfund Progress Report

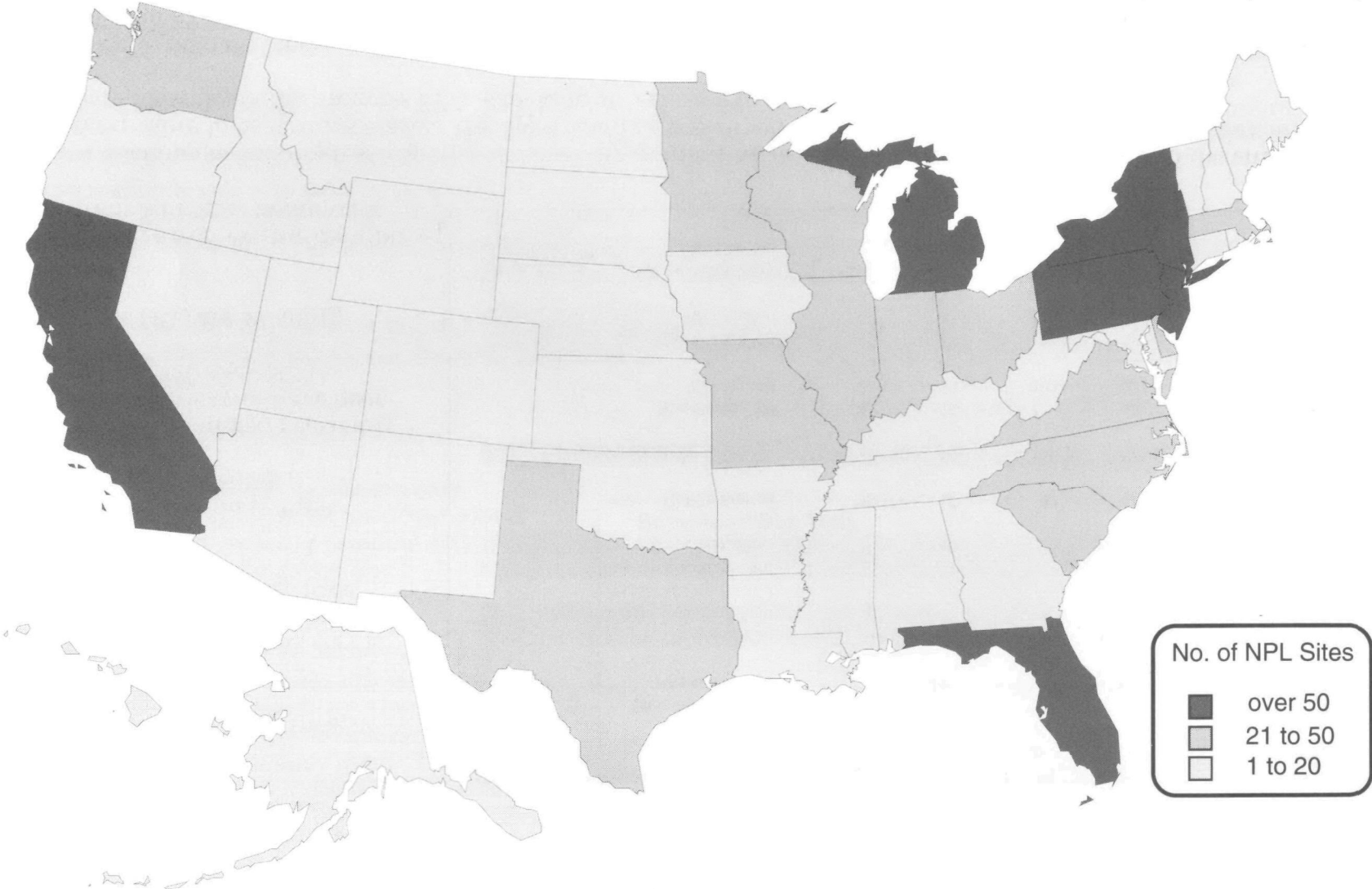
(Fund and Enforcement Projects, excluding Federal Facilities)

(Inventory = 35,220 Sites)

Actions at Sites	Current Quarter		Total FY 1992		FY 1980 to Date	
	CPs	Sites	CPs	Sites	CPs	Sites
Removals Completed	143	127	351	287	2,636	2,134
Removals Started	142	115	382	310	3,149	2,512
Sites Awaiting PAs	-	-	-	-	-	1,655
PAs Completed	-	340	-	1,280	-	33,565
Sis Completed	-	455	-	1,344	-	15,312
Site Evaluation Accomplished	-	-	-	-	-	20,453
Sites Proposed for NPL	-	24	-	24	-	43
Total NPL Sites	-	1,148	-	1,148	-	1,148
RI/FSs Started	35	15	92	41	1,652	1,064
Records of Decision Signed	78	59	120	87	1,023	744
RDs Completed	49	24	121	65	612	413
RDs Started	63	28	183	92	1,033	629
RAs Completed	40	23	88	57	323	230
RAs Started	69	37	113	63	667	442
Sites Completed	-	68	-	85	-	148
Sites Deleted	-	0	-	2	-	40

NPL Site Distribution

(Total = 1,245 sites)



Puerto Rico has 9 Superfund sites, Guam has 2, and the U.S. Virgin Islands has 1.

A Note on the Superfund Accelerated Cleanup Model

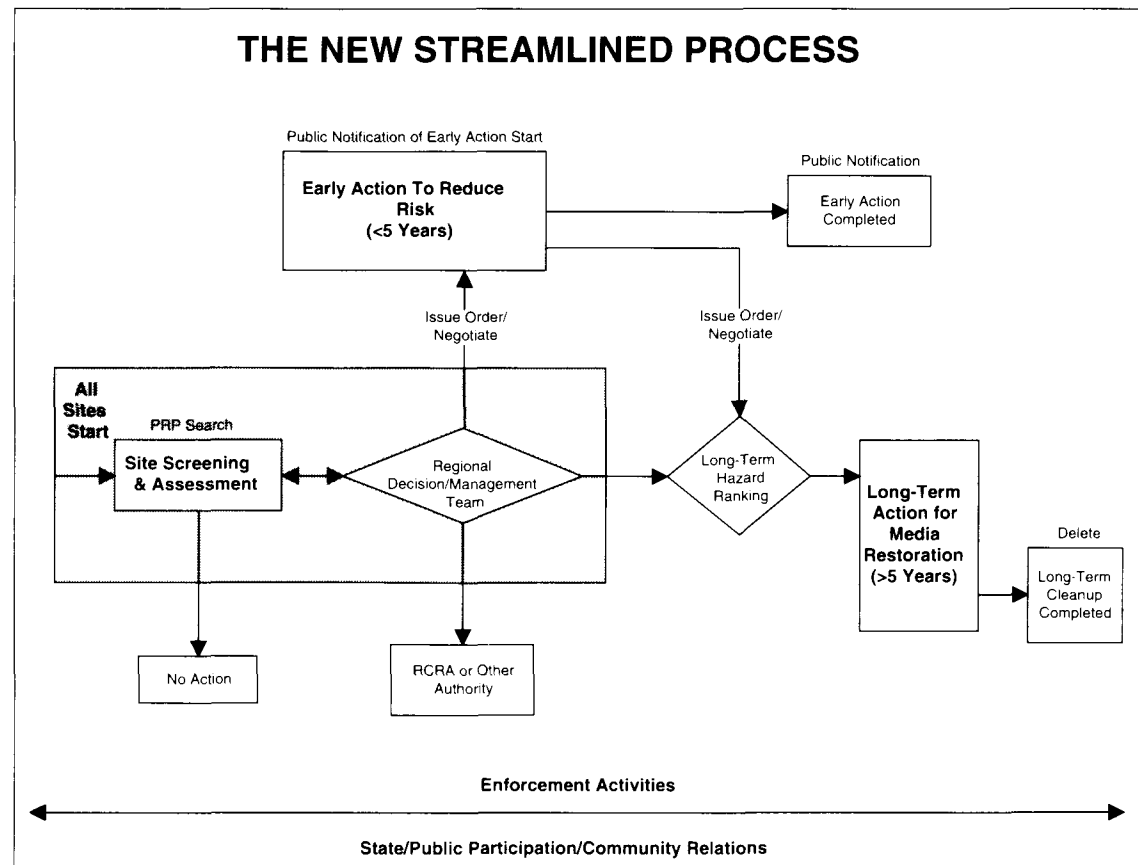
The Superfund process is changing as EPA adopts the Superfund Accelerated Cleanup Model (SACM) to speed hazardous waste site cleanups and quickly reduce risks to people and the environment.

SACM (pronounced sack-em), combines Early Actions, such as removing hazardous wastes or contaminated materials, with ongoing studies so that public health and environmental threats are taken care of while long-term cleanups are being planned.

Early Actions will take, by definition, less than five years to complete. They likely will eliminate most of the risks posed to people by hazardous waste sites. While these activities are underway, a Regional Decision Team of Superfund site managers, risk assessors, community relations coordinators, Regional counsel, and other experts will monitor site studies to determine precisely what short- and long-term actions are required. Cleanups of mining sites, wetlands, and estuaries, as well as projects involving incineration of contaminants or restoration of ground water are examples of long-term actions to return.

EPA's adoption of SACM also will change how Superfund progress is reported. By Federal Fiscal Year 1994, which begins October 1, 1993, all hazardous waste sites will be considered Superfund sites. Similarly, emergency

removals will not be reported separately from remedial actions, and no administrative distinctions will be made between Preliminary Assessments/Site Inspections and Remedial Investigation/Feasibility Studies. Rather than focus on the number of starts made at each step of the current Superfund process, FY94 issues of *Superfund Progress—Aficionado's Guide* will stress the public health and environmental protection the Program provides.



The Superfund Removal Program responds to short-term emergencies that involve hazardous materials and threaten public health. By law, they can take up to a year to finish and can cost as much as \$2 million. However, exemptions to this can be granted. By law, EPA's removal activities can include:

- Evacuating, if necessary, people living near a hazardous materials emergency.
- Removing the hazardous substances from the area to be disposed of properly.
- Supplying clean drinking water to people whose water has been contaminated by hazardous materials: and
- Posting warning signs and taking other precautions to keep people and animals away from hazardous waste sites.

A single hazardous waste site or accidental spill may require more than one removal action if more than one pollutant is present. The removal of pollutants that pose different hazards and require different cleanup techniques could be considered separate actions. Each action is known as a **clean-up project (CP)**.

While Responsible Party cleanup is desirable, the key is quick response. PRPs are encouraged to participate in the Removal Program wherever possible, provided EPA's ability to respond quickly is not limited.

Emergency Removal Program (Excluding Federal Facilities)				
	Total FY 1992		FY 1980 to Date	
	Sites	CPs	Sites	CPs
Total Removals Started	310	382	2,512	3,149
Total Removals Completed	287	351	2,134	2,636
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Non-NPL Removals Started	279	321	2,029	2,286
Non-NPL Removals Completed	246	282	1,708	1,903
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NPL Removals Started	31	61	483	863
NPL Removals Completed	41	69	426	733

Preliminary Assessment/Site Inspection (PA/SI)

A Preliminary Assessment (PA) is the first step in determining whether a hazardous waste site requires long-term cleanup. EPA or the State reviews site reports and documentation to identify what hazardous materials may be at the site and how they may spread. They also identify who may be harmed by the chemicals. If a PA indicates that a site is dangerous, EPA will conduct a more detailed inspection called a Site Inspections (SI).

Sites determined by the PA to warrant further inspection become the subject of Site Inspections. In a typical SI, a Regional EPA staff member visits a site to collect information about its soil types, the streams or rivers that flow through or near it, the local weather, the people who live nearby and the site's owner(s). Air, soil, and water samples taken on and off the site help investigators determine whether hazardous materials have traveled away from a site.

Usually, the PA or SI shows that a Superfund cleanup action is not warranted. This does not mean, however, that the site is safe. It just means that this particular site is unlikely to qualify for a Superfund cleanup. Instead, other federal programs, or state or local governments, companies, or private citizens become responsible for cleaning up these sites.

Preliminary Assessments/Site Inspections (Excluding Federal Facilities)

	Total FY 1992	FY 1980 to Date
	Sites	Sites
PAs Completed	1,280	33,565
Site Inspections Completed	1,344	15,312

Disposition of Preliminary Assessments/Site Inspections

Site Evaluation Accomplished	20,453
Sites Awaiting Preliminary Assessments	1,655
Sites Awaiting Site Inspection	2,628

National Priorities List (NPL)

EPA uses the Hazard Ranking System (HRS) to evaluate the public health and environmental threats posed by hazardous waste sites considered for a Superfund cleanup. Each site receives a numerical score based on the likelihood that people will be exposed to hazardous materials on or off the site. Sites that score at least 28.50 on the Hazard Ranking System's 100-point scale are eligible for the National Priorities List (NPL) of Superfund sites. (The 28.50-point cutoff has its origins in the 1980 law that established Superfund.)

National Priorities List (NPL) (Includes Federal Facilities)	Total FY 1992	FY 1980 to Date
	Sites	Sites
Sites Proposed for NPL	30	52
Sites Removed From Proposal	4	79
Sites Deleted From NPL	2	40
Total NPL		1,275

Sites that rank lower than 28.50 also may be potentially dangerous and should be considered as candidates for cleanup by state or local government.

EPA also can place on the NPL sites that score less than 28.50 if (1) the Agency for Toxic Substances and Disease Registry (ATSDR) of the U.S. Public Health Service has issued a public health advisory that recommends people be moved from the site, (2) EPA determines that the site poses a significant threat to public health, and (3) EPA anticipates that a remedial cleanup would be more cost effective than a removal action.

The NPL is EPA's list of the nation's worst hazardous waste sites. Sites on the NPL are eligible for federally funded cleanups. Between 5 percent and 10 percent of the sites EPA evaluates using the HRS eventually are placed on the NPL.

Currently, more than 1,200 sites are on the NPL, three times more than Congress envisioned in 1980, when Superfund began. EPA lists sites on the NPL by state and indicates whether a site is a federal facility. About 100 sites are added to the NPL each year, and EPA expects the NPL to grow to more than 2,000 sites by the end of the century.

Each NPL site has been assessed to determine if an emergency removal is necessary to protect neighboring populations. And every NPL site is re-assessed at least every two years to determine if conditions have changed to warrant an emergency removal.

Remedial Investigation/Feasibility Study (RI/FS)

NPL sites are considered for long-term cleanup of their contamination problems under the Superfund program. The cleanup process has two major phases. The first is the Remedial Investigation/Feasibility Study (RI/FS). It

Remedial Investigation/Feasibility Study (RI/FS) (Excluding Federal Facilities)						
	Total FY 1992			FY 1980 to Date		
	Sites	(CPs)	% RP/Site Lead	Sites	(CPs)	% RP/Site Lead
RI/FSs Started	41	92	48%	1,064	1,652	37%

includes a detailed review of site conditions and a listing and evaluation of the possible courses of action that could correct problems at the site. An RI/FS can begin even before a site is given an HRS score. On average, an RI/FS costs \$750,000 and takes approximately 30 months to perform. Wherever possible EPA negotiates with Responsible Parties to conduct these studies, but ultimately it is EPA's responsibility, with public input, to chose the long-term cleanup method.

Because many sites have more than one contamination problem—and even a single problem has more than one aspect—EPA often breaks down the RI/FS and subsequent steps into **clean-up projects (CPs)**. Each clean-up project is tantamount to a phase of a particular activity. The most common CPs are the “source control clean-up project” and the “management of migration clean-up project.” The former is concerned with problems associated with the source of site contamination; the latter is concerned with controlling the source of contaminants. Each step in the long-term cleanup of a Superfund site may be performed separately for each clean-up project.

Record of Decision (ROD)/Remedial Design (RD)

After EPA determines the best of several alternatives for site cleanup, it solicits public input. Based on that input and data collected, EPA decides how a site will be cleaned up and issues a Record of Decision (ROD). The ROD

	Total FY 1992			FY 1980 to Date		
	Sites	(CPs)	% RP/Site Lead	Sites	(CPs)	% RP/Site Lead
	RODs Completed	87	120	N/A	744	1,023
RDs Started	92	183	74%	629	1,033	54%
RDs Completed	65	121	69%	413	612	50%

discusses the various cleanup techniques that were considered and explains why a particular course of action was selected. If a site has more than one CP, a ROD for each CP may be issued. The selection process solicits public involvement, and the ROD also contains EPA's responses to public concerns regarding cleanup options for a site. Even if responsible parties have conducted the RI/FS, it is EPA's responsibility to select the most cost-effective cleanup method that will meet EPA cleanup goals.

Sometimes EPA determines that no cleanup activity is necessary; for example, a chemical may be so diluted in ground water that the water meets national or state safety standards. (Or an Emergency Removal Action took care of the problem before the ROD phase was reached.) In such cases where no cleanup activity is required, EPA may issue a "no-action ROD." (The term is a bit of a misnomer, however, for monitoring or other activities will be performed even if no cleanup is performed.)

Once EPA chooses a clean-up remedy, it must fit the technique to the site conditions. This adaptation, called the Remedial Design (RD), kicks off the second phase of a cleanup. A Remedial Design can take 12 to 18 months and cost an average of \$1 million. If Responsible Parties are conducting the design, it is EPA's responsibility to approve final plans and specifications for the actual cleanup.

This stage, in conjunction with the actual site cleanup, is the most costly, and Responsible Party participation in this effort is essential. Thus, EPA negotiates with Responsible Parties to conduct the Remedial Design and Remedial Action. Given current resource levels, EPA would be unable to achieve the progress it has without Responsible Party participation.

The actual clean-up work at a Superfund site is done during the Remedial Action phase. This is when the earth-moving equipment arrives and when necessary structures are built to treat contaminants on site. Depending on the contaminants involved, and the treatment techniques used to clean them up, this phase may take as long as six years to complete. If contaminated ground water must be cleaned up, the work may continue for decades.

	Total FY 1992			FY 1980 to Date		
	Sites	(CPs)	%RP/Site Lead	Sites	(CPs)	%RP/Site Lead
RAs Started	63	113	75%	442	667	51%
RAs Completed	57	88	66%	230	323	45%

The cost of Remedial Actions averages \$25 million. Thus, Responsible Party participation in this phase of the project is most important. If Responsible Parties are conducting this phase, EPA conducts extensive oversight to ensure that the remedy is implemented consistent with the ROD and the design specifications and that protective cleanup levels are achieved.

Whenever possible, EPA begins looking for PRPs before beginning any clean-up work paid for out of the Superfund Trust Fund. PRPs are liable for all costs incurred by the Federal Government. The search for PRPs can be lengthy, and site cleanup often begins before all PRPs are identified. In any event, the search for PRPs and the negotiations to get the site cleaned up will not delay work to reduce imminent threats to public health.

Once PRPs and RPs are identified, EPA will attempt to negotiate consent decrees with them. These documents specify the duties and responsibilities of each RP regarding a cleanup. If consent negotiations fail, EPA can issue a unilateral administrative order for cleanup. The Agency also may begin cleaning up the site, then sue the RPs to recover its costs.

EPA can refer to the United States Department of Justice for prosecution cases against RPs who fail to comply with federal cleanup orders. Under the Superfund law, EPA can recover its cleanup costs plus triple that amount in damages for those that fail to comply with these orders.

Enforcement In Superfund				
ACTIVITY	Total FY92		Program-To-Date*	
	Actions	Value (M)	Action	Value (M)
Total RP Response Settlements**	228	\$1,527.0	1,766	\$7,477.5
RD/RA Settlements	88	\$1,369.8	421	\$5,232.1
Total Unilateral Orders Issued***	110	\$556.3	778	\$1,950.8
UAOs Issued for RD/RA	45	\$467.8	175	\$1,756.3
Total AOCs Signed	135	\$98.4	1,086	\$1,426.4
AOCs for RD (only)	3	---	15	---
Cost Recovery Referrals to DOJ	75	\$137.4	516	\$913.0
Total Cost Recovery Settlements	243	\$280.3	1,293	\$850.0
Total Cost Recovery Collections	---	\$183.7	---	\$524.7
* Thru FY92 Source: CERCLIS ** Does not include State Lead Settlements, and Federal Facilities Inter-Agency Agreements. Includes RD/RA Settlements below. *** Includes UAOs issued for RD/RA.				